

Stright

**SPRING
2014**

Lines

IUP Mathematics Department Alumni Newsletter

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Notes from the Department

It is a busy time for us here in the Mathematics Department. The Spring semester is well under way, we are searching for a new statistician, and we are working on the department 5 year review.

You may have read that some of IUP's sister schools in the State System of Higher Education (SSHE) are going through some rough financial times and are retrenching (laying off) faculty. We will not go into the blame game here, but when one door closes another opens. Dr. Rachelle Bouchat was retrenched from Slippery Rock University, but we are happy to say that she will be landing here at IUP to join the Mathematics Department for the Fall 2014 semester. Dr. Bouchat received her Ph.D. in commutative algebra from the University of Kentucky in 2008. She also has local connections, having graduated from the University of Pittsburgh at Johnstown in 2003. You will learn more about Shelly in a future issue.

With our five year review underway, here are some of the things we are looking at.

1. Improving retention rates in both precalculus mathematics and in our majors. Poor student performance in all of our precalculus courses has been a problem for at least 20 years. While we have tried different ideas in the past, the time has come to try to tackle this problem again.

2. Improving our recruitment efforts and looking at new programs. There is no doubt that the pipeline of college age students in western Pennsylvania is drying up. We need a "Keystone Pipeline" of students to come to IUP. We also need to recruit a more diverse faculty and student body. We will be looking at ways to accomplish this. You read in the previous issue of **Stright Lines** that we were exploring of the feasibility of starting a

new track that will focus on Financial Mathematics/Actuarial Science. That is still very much our goal. While recruiting new faculty to work in this program has been difficult, we have some very capable faculty who are ready and willing to take on this task.

3. Finally, we are looking at ways to improve our students' research, writing, and communication skills. IUP's new Writing Across the Curriculum Coordinator Dr. Bryna Siegel Finer is working with a team of mathematics faculty to work on a writing plan for our majors. Dr. Finer notes that "A recent US News and World Report article lists the top eleven skills college graduates will need for a career: among them, 'writing clearly and forcefully,' 'systematizing and organizing data,' 'doing research,' 'taking notes,' and 'creative thinking.' These are all skills that can be acquired using the writing-to-learn pedagogies, but only if these skills are taught and practiced in as many courses as possible across a student's entire curriculum. Simply put, better writing skills will make our graduates more competitive in the workforce."

As alumni, you can help is in all of these efforts. In the coming year you may be asked to respond to surveys about your experiences at IUP and in your career. Please help us improve our programs by telling us what worked and what did not work for you while you were at IUP.



About Our Students: Scholarship Awards

Students Honored at Annual Scholarship Banquet

The Mathematics Department awarded scholarships and recognized scholars for the academic year at a banquet on May 10, 2013.

The *James A. Boytim Scholarship in Mathematics* was awarded to **Shanna Grusky**, a Secondary Mathematics Education major from Derry, PA and **Kaitlyn Selfridge**, a Secondary Mathematics Education major from Saxonburg, PA. Since Kati and Shanna are rarely seen apart, it is appropriate that they shared this award. The Boytim Scholarship is awarded to seniors in the Mathematics Department who are of good character and who demonstrate the promise of future success in the education profession. Kaitlyn is the daughter of **Raymond Grzywinski (B.S. Ed. '65)**.



Shanna Grusky and Kati Selfridge



Savanna Bonds with Dr. Alarcón

The *Roy A. Daugherty Scholarship* was awarded to Savanna **Bonds**, a Mathematics major from Palmyra, PA.

The *Tony and Carole Kuczinski Memorial Scholarship* was awarded to **Michael Myers**, a Secondary Mathematics Education major from New Castle, PA. The Kuczinski Scholarship is for mathematics education majors who are involved with extracurricular activities.



Michael Myers with Dr. Alarcón



Breanne Denning with Dr. Metz

Middle level mathematics education majors **Breanne Denning** from Marion Center, PA and **Andrea Marra** from Morton, PA were the recipients of the *Dr. Willard W. Hennemann, Jr., Memorial Scholarship*, awarded to an undergraduate or graduate student with a strong commitment to the field of mathematics education at the elementary or middle school level.



Andrea Marra and Dr. Reilly

The *Merle Stilwell Scholarship for Mathematics* was presented to **Rebecca Nichol**, a Mathematics major from Dayton, PA.



S-COAM Scholars (front row) Noriko Mikeasky, Elizabeth Stimmell, Amira Kesseem (back row) Scott Rega, Tyler Jack, Michael Myers, Savanna Bonds, Aaron Waibel, Ashleigh Craig, Anthony Filiziani, Theresa Scarnati, Jonathan Wayland, Kaitlyn Selfridge, John Kearney, Richard Coultas

About Our Students: Scholarship (continued)

The *Arthur G. Morrell Memorial Scholarship* is given to a math major completing the sophomore or junior year at IUP who best reflects the character and interests of Captain Arthur G. Morrell, a 1975 IUP graduate in mathematics education and U.S. Marine pilot who died on a training flight. This year's scholarship was awarded to mathematics major, **Hadley Cesar** of Clarksburg, PA.



Hadley Cesar and Dr. Dahma



Dr. Baker with Renee Clouse

The *Mildred M. Reigh Scholarship* honors the memory of Mildred M. Reigh, professor of Mathematics at Indiana University of Pennsylvania from 1963 to 1981. The award is presented to an undergraduate or graduate student with junior standing who exemplifies excellence in or potential for excellence in mathematics teaching at the elementary or secondary level. This year the Reigh Scholarship supports three students: secondary mathematics education majors **Shanna Grusky** and **Kaitlyn Selfridge**; and middle level mathematics education major, **Renee Clouse** of Butler, PA.



Derek Hanely with Dr. Lattanzio

Derek Hanely and **Theresa Scarnati** received the *Terry A. Serafini Outstanding Scholars* award. Derek is a Mathematics major from Pleasantville, PA and Theresa is a Mathematics major from Erie, PA. Mr. Serafini is a 1961 graduate of then Indiana State College with a degree in Mathematics Education who after a career in the U.S. Army went on to a successful career in the computer industry.



Theresa Scarnati with Dr. Radelet



Dr. Chrispell and Dr. Walker with Ashleigh Craig

Ashleigh Craig, a mathematics major from Hollidaysburg, PA, was the recipient of the *Rebecca A. Stoudt Memorial Scholarship for Mathematics*. The scholarship is given in memory of Dr. Rebecca Stoudt, a faculty member in the mathematics department from 1991-2002. Ashleigh is the daughter of **Leigh (Sneddon) Craig (B.S. Ed. '85, M. Ed. '89)** and **Barry Craig (B.S. '85)**.

Also honored at the dinner were the 2013 Scholarships-Creating Opportunities for Applying Mathematics (S-COAM) scholars. The goal of the S-COAM project at IUP is to increase the overall number of students pursuing degrees in mathematics by establishing a supportive connection of master's students with undergraduates through scholarship cohort activities. The graduate S-COAM scholars in the M.S. in Applied Mathematics program include: **Dane Joshua Buchheit** (Cogan Station, PA), **Richard Coultas** (Newport News, VA), **Anthony Filiziani** (Barnesville, PA), **Ryan Grove** (Portage, PA), **Scott Rega** (Bethlehem, PA), **Jonathan Wayland** (Dubois, PA), and **Jeremy Yagle** (Moshannon, PA).

Undergraduate S-COAM scholars include: **Rebecca Beadling** (Biology/Chemistry, Levittown, PA), **Savanna Bonds** (Mathematics/Economics, Palmyra, PA), **Ashleigh Craig** (Applied Mathematics, Hollidaysburg, PA), **Charles Culbertson** (Biochemistry, Oil City, PA), **Tyler Jack** (Secondary Mathematics Education, Cadogan, PA), **John Kearney** (Geology, Pittsburgh, PA), **Amira Kessem**, (Physics/Pre-Engineering, Cleveland, OH), **Amber McClure** (Pre-Optometry, Milesburg, PA), **Noriko Mikeasky** (Biochemistry, Johnstown, PA), **April Mitchell** (Pre-Physical Therapy, Camp Hill, PA), **Michael Myers** (Secondary Mathematics Education, New Castle, PA), **Rebecca Nichol** (Mathematics, Dayton, PA), **Daniel O'Hara** (Geology/Computer Science, Ebensburg, PA), **Theresa Scarnati** (Mathematics, Erie, PA), **Kaitlyn Selfridge** (Secondary Mathematics Education, Saxonsburg, PA), **Zachary Seymour** (Computer Science/Mathematics, Hollidaysburg, PA), **Elizabeth Stimmell** (Chemistry, Leechburg, PA), **Matthew Sulkosky** (Mathematics/Computer Science, Indiana, PA), **Loeun Thach** (Computer Science, Philadelphia, PA) **Aaron Waibel** (Computer Science/Mathematics, Rochester, PA), **Brittney Wiesheier** (Chemistry Education, Johnstown, PA).

About Our Students

Student Presentations and Internships

- Senior Secondary Mathematics Education majors **Chad Borusky**, **Shanna Grusky**, **Travis Hannam**, **Heather Hobbins**, **Tyrone Jones**, **Samantha Kissel**, **Trisha Klingensmith**, **Julie Maloney**, and **Kaitlyn Selfridge** presented “Making Meaningful Connections by Incorporating Videos into Your Lessons” at the 2013 Pennsylvania Council of Teachers of Mathematics (PCTM) annual meeting. **Dr. Brian Sharp** mentored the student presentation.
 - **Ryan Grove** (B.S. '12, M.S. '13) presented his master's thesis work, “Immersed Boundary Modeling of Journal Bearings in a Viscoelastic Fluid” at the Allegheny Mountain Section of the Mathematical Association of America (MAA) Spring 2013 meeting at IUP on April 5–6, 2013 and at the annual spring meeting of the Pennsylvania State System of Higher Education Mathematics Association (SSHEMA) on April 17–18, 2013.
 - **Richard Coultas** presented “An Introduction to Non-Repetitive Sequences” and **Jeremy Yagle** presented “Mathematical Models of Running” at the MAA meeting.
 - **Jon Wayland** and **Scott Rega** presented presented “White-Tailed Deer Forecast” at the SSHEMA meeting. Wayland, Rega, Yagle, and Coultas presented work they had completed for **Dr. Rick Adkins'** Modeling and Simulation class.
 - **Ashleigh Craig** and **Theresa Scarnati** presented their research on Model for End-Stage Liver Disease (MELD) scores and survival rates of liver transplant recipients at IUP's Research Appreciation Week April 1-5, 2013. This research also started as a class project in Dr. Rick Adkins' Modeling and Simulation class, models the effects of the MELD scores on the survival. **Theresa Scarnati** also presented “Game Theory: Rock, Paper, Scissors, Lizard, Spock at the MAA Meeting.
 - **Megan Labant** (B.S. Ed. '12) received an award for best Mathematics Education Work Sample at the Women in Mathematics, Science, and Technology Program held on April 1. Labant's faculty supervisor was **Dr. Edel Reilly**. Megan is currently a mathematics teacher at Robert E. Lee High School in Springfield, Va.
 - **Sal Brusco** (B.S. Ed. '13) and **Maranda Evans** (B.S. Ed. '13) presented on the SMART Notebook Math Module at the Spring MAA meeting at IUP. B.S. Ed. '13 graduates **Jordan Ritchie**, **Jody Crissman**, and **Stephanie Edsall** presented “Smart Pens in the Classroom” at this meeting and **Stephen Donnel** (B.S. Ed. '13) and **Tyler Jack** (B.S. Ed. '13) talked about 3-D printing.
 - **Tyrone Jones** presented “Modular Arithmetic for Vietnam POWs” at the Spring MAA meeting at IUP.
 - **Hadley Cesar** presented “The Mathematics of Music” at the Spring MAA meeting at IUP.
 - M.Ed. Student **Seonmi Do** presented “Angles in the Analog Clock” at the Spring MAA meeting at IUP.
- During Summer of 2013 Mathematics Department Students were active in internship and research activities.
- **Ashleigh Craig** interned at Goldman, Sachs & Co in Salt Lake City, UT.
 - **Theresa Scarnati** attended the Research Experience for Undergraduates program at North Carolina State University, Raleigh, NC.
 - **Scott Rega** interned at Lancaster General Health, Lancaster, PA
 - **Jon Wayland** interned at Phoenix Benefits Groups, Pittsburgh, PA.
 - **Jeremy Yagle** interned at NASA Independent Verification and Validation Facility, Fairmont, WV.
 - **Matthew Sulkosky** interned at Science Applications International Corporation/Leidos in Reston, VA.
 - **Joshua Buchheit** (M.S. '12) interned at the Center for Rural PA, Harrisburg, PA.

IUP-PTM Sponsors Third Annual “Family Math Night”

The IUP Pre-Service Teachers of Mathematics (IUP-PTM) sponsored their third annual “Family Math Night” in April 26, 2013 for Indiana School District children in grades K-5 and their parents. Nearly 50 children, parents, and faculty members attended the event in IUP's Zink Hall. It was a fun-filled night of math games, snacks, stories, and prizes coordinated by the IUP-PTM officers (from left below) Kylie Smathers, Katie Lishinsky, Morgan Hess, and Renee Clouse.



Students Receive Degrees at May 2013 Commencement



Participating in the May 2013 Mathematics Department Graduation Ceremony (left to right): Maranda Evans, Robbie Zinsmeister, Sal Brusco, Josh Buchheit, Bill Gehrett, Stephen Donnel, Tyler Jack, Loic Niragire, Jordan Ritchie, Jody Crissman, Stephanie Edsall, Zachary Seymour, and Emilia Osborne. Additional photos on the department website under Events

B. S. in Education, Secondary Mathematics

Salvatore Richard Brusco
 Jody Pounds Crissman
 Stephen Douglas Donnel
 Stephanie Renee Edsall
 Maranda N. Evans
 Robert C. Gromley
 Tyler Shane Jack
 Jordan Lindsay Ritchie

Bachelor of Science, Applied Mathematics

Charles William Gehrett

Bachelor of Science Mathematics

James Joseph Bradford
 Emilia Roberta Osborne
 Hannah Taylor Raihall
 Zachary Adam Seymour
 Aaron Joseph Waibel
 Robert W. Zinsmeister

Master of Education, Elementary and Middle School Mathematics

Danielle Crossey (August, 2013)

Master of Science, Applied Mathematics

Ryan Grove
 Loic Niragire
 Jeffrey Vargson
 Joshua Buchheit (August, 2013)



Congratulations to these students who are now the newest members of the IUP Mathematics Department Alumni!

About Our Alumni

ANNUAL MATH DEPARTMENT ALUMNI BREAKFAST

Highlights from the 2013 Alumni Breakfast

Once again Mathematics Department alumni shared a breakfast with Computer Science Department alumni on October 5, 2013 before the annual Homecoming Parade. Many thanks to Yvonne Dougherty from Computer Science for coordinating the event. We hope to see you at the Fall 2014 Mathematics Department Alumni Breakfast!



Ashleigh Craig (B.S. '14), Dr. Gary Stoudt, Dr. Francisco Alarcón, Dr. Arlo Davis, Mrs. Gloria Shepler, Dr. Jack Shepler, and Bob Strouse (B. S. Ed. '70)



Emmy Griffith (B.S. Ed. '98), Skip Griffith, Dr. Gian Pagnucci, Dr. Gary Stoudt



Hollie Uccellini (M.A. '84) Barry Craig, (B.S. '85) Leigh (Sneddon) Craig (B.S. Ed. '85, M. Ed. '89), and Dr. Cathy (Gump) Schloemer (B.S. Ed. '76, M. Ed. '79))



Mini class reunion: Dr. Mary Lou (Dietrick) Metz (B.S. Ed. '76, M. Ed. '98), Dr. John Uccellini (B.S. Ed. '76, M.S. '77), and Dr. Cathy (Gump) Schloemer (B.S. Ed. '76, M. Ed. '79)



Retired Mathematics faculty members Dr. James Reber, Dr. Maher Shower, Dr. Arlo Davis, Mr. Doyle McBride, and Dr. Joseph Angelo

About Our Staff

ELAINE WHITE RETIRES

A long time fixture in the Mathematics Department, Elaine White retired in December, 2012. Elaine came to work in the Mathematics Department in 1972 and worked for six different chairpersons (Woodard, Reber, Broughton, Buriok, Stoudt, and Alarcón). We all wish her the best in her retirement!



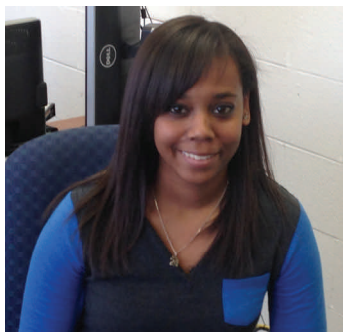
Elaine with former chairpersons Reber, Woodard, Stoudt, and Alarcón at her retirement dinner.



Elaine receives flowers from Chairperson Alarcón and Assistant Chairperson Reilly at her retirement reception.

NEW FACES IN THE DEPARTMENT OFFICE

The voice you hear when you call the Mathematics Department? That would be Lori Marshall, who joined the department in February, 2003. Lori came to IUP in 2003 when she joined the Sociology Department as the graduate secretary. She is happily married to her husband of 19 years, Ken, and together they have three sons: Joseph, 16; Jared, 15; and Trenton, 9. The boys are all active in sports, hunting and fishing, and tractor pulling. Lori is also the organist at Creekside United Methodist Church and is an amateur photographer. She also takes classes at IUP and is pursuing a B.S. Ed. in Business Education. When she has a spare moment, she enjoys riding her horses, Bandit and Cabby.



Shawn Mosley, a graduate of Canon-McMillan High School near Pittsburgh, came to IUP in the fall of 2012. She joined the Mathematics Department as a student worker in the department office. Shawn is currently pursuing a B.S. degree in Applied Mathematics and someday hopes to become an actuary. She is a S-COAM scholar who is excited to continue pursuing her degree in hopes of graduating in the spring of 2016. In her spare time, Shawn enjoys playing and watching basketball, as well as going for long drives and running.

About Our Faculty



FACULTY AWARDS, PUBLICATIONS, AND PRESENTATIONS

- **Dr. Alf Dharma** presented “The Spaces L_p for $0 < p < \infty$ ” at the Regional Meeting of the American Mathematical Society in St. Louis in October 2013.
- **Drs. John Lattanzio, Daniel Radelet, and Greg Wisloski** wrote a chapter on graph theory for the third edition of *Math in Our World* by Dave Sobacki.
- **Dr. Yong Colen** and **Dr. Channa Navaratna** along with **M. Navaratna** published “Integration of Logic Circuit Boards in Teaching Truth Tables” in *MathAMATYC Educator*.
- Four faculty members presented sessions at the 2013 Pennsylvania Council of Teachers of Mathematics Annual Conference in Seven Springs in November. They were **Drs. John Baker, Mary Lou Metz, Brian Sharp, and Janet Walker**. **Dr. Edel Reilly** coordinated the registration for the event.
- The Mathematics Department hosted the Spring 2013 Meeting of the Allegheny Mountain Section of the Mathematical Association of America on April 5-6, 2013. **Dr. Tim Flowers** was the local organizer. The department was out in full force with presentations at the meeting. Faculty presenters were **Drs. John Chrispell, Alf Dharma, Ed Donley, Larry Feldman, Jason McCarty, Daniel Radelet, Brian Sharp, Gary Stoudt, and Greg Wisloski**. Also presenting at the meeting was **Dr. Daniel Galiffa (B. S. '04)**, currently at Penn State Erie, the Behrend College.
- **Dr. Mary Lou Metz** and **Dr. Edel Reilly** presented “Going Beyond ‘Show Your Work’” at the NCTM Annual Conference in Denver in April 2013.
- **Dr. Edel Reilly** presented “Building Bridges to All Students: Differentiated Instruction Strategies in Mathematics Class” at the International Association of Special Education 13th Biennial Conference, July 7-11, 2013 in Vancouver, Canada.
- **Dr. Edel Reilly** and her husband **Dr. Gian Pagnucci** published “Teacher Marriages” in *Pennsylvania English*, a publication of the Pennsylvania English Association.
- **Dr. John Chrispell** and his colleagues L.J. Fauci, and M. Shelley published “An actuated elastic sheet interacting with passive and active structures in a viscoelastic fluid” in *Physics of Fluids*, January 2013.
- **Dr. Russell Stocker**, along with coauthors Akim Ad-ekpedjou and Withanage De Mel, published their article entitled “A Class of Inference Procedures for Validating the Generalized Koziol-Green Model with Recurrent Events” in *Computational Statistics and Data Analysis*.
- **Dr. Tim Flowers** was co-organizer of an MAA Invited Paper Session on “The Beauty and Power of Number Theory” at the 2013 Joint Mathematics Meetings in San Diego. Dr. Flowers also presented “Teaching Elementary Number Theory: Something Old, Something New, Something Borrowed” at that meeting.
- **Dr. Flowers** also presented a talk at the PASSHE Mathematics Association Conference on April 20, 2013 entitled “Enumerating the Rationals and Beyond.”

About Our Faculty

LYME DISEASE DYNAMICS

Mathematics Department and Biology Department faculty and students are teaming up to study the transmission and ecology of Lyme disease. Infected black-legged ticks, more commonly called deer ticks, transmit *Borrelia burgdorferi* bacteria to ground-feeding birds and mammals, including humans. This bacterium causes Lyme disease in humans and some domestic animals. Ticks take three blood meals during their lives, and only acquire the bacteria when they feed from an infected bird or mammal. The infected tick then transmits the bacteria to other birds and mammals during subsequent blood meals. The movements of these vertebrates spread the bacteria to new areas. Further, the tick's life stages follow seasonal cycles and they have specific environmental requirements. The population dynamics, interspecies relationships, and environmental factors make for a rich mathematical model.



John Crispell and Ed Donley are assisting Biology graduate student, Michele Myers-Claypole with the field work so that the mathematics faculty will better understand the parameters that go into their mathematical model for Lyme disease.

The biology faculty, Tom Simmons, Vida Irani, and Jeff Larkin, and their students are conducting field and laboratory experiments on *Borrelia*, ticks, mammals, and birds. Their results will determine values for parameters in the discrete simulation model that mathematics professors, **John Crispell** and **Ed Donley**, and mathematics students will build. Once the model is complete, the team will be able to vary the model to determine the effect on the prevalence of *Borrelia*. For example, white-footed mice are a significant reservoir for the bacteria, while opossums are not. Opossums eat mice. So, what would happen if we doubled the number of opossums, or doubled the number of mice? These questions would be difficult to answer with field experiments, but are easy to answer with mathematical models. The team hopes to obtain findings that will guide wildlife resource managers and citizens so everyone can more safely work and play in the outdoors.

TIM FLOWERS RECEIVES INAUGURAL OUTSTANDING FACULTY SERVICE AWARD

Dr. Tim Flowers received the very first Outstanding Faculty Service Award for the Mathematics Department during the Department Awards Banquet in May 2013. The award was initiated by Department Chairperson Dr. Francisco Alarcón to recognize the work for the department that often goes unrecognized. Dr. Flowers served as the Local Organizer for the Allegheny Mountain Section of the MAA Conference at IUP last April. The conference was a huge success, with some evidence to this fact to be found earlier in this issue with all the student and faculty presentations at the conference. Dr. Flowers also chaired a faculty search committee and oversaw the annual Mathematics Competition for local high school students, among his many other service activities.



Do you have news you want to share? Contact Dr. Mary Lou Metz at mlmetz@iup.edu and we can include it on our web page and/or a future issue of **Strict Lines**. Also, find us on Facebook—our closed group is **IUP MATHEMATICS**.

Mathematics Department

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Welcome to the Spring 2014 edition of

Stright Lines

the IUP Mathematics Department Alumni Newsletter